



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,505	04/13/2001	Shau-Lin F. Chen	4424/4526	5807

7590                    05/12/2003

Chief Patent Counsel  
Engelhard Corporation  
101 Wood Avenue  
P.O. Box 770  
Iselin, NJ 08830-0770

[REDACTED] EXAMINER

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
	1754

DATE MAILED: 05/12/2003

//

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/834,505	CHEN	
	Examiner VANOY	Group Art Unit 1754	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

**P**riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE — MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

THE AMENDMENT MAILED ON APRIL 9 2003

Responsive to communication(s) filed on \_\_\_\_\_

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

Claim(s) 1, 2, 9, 20, 21, 29, 34, 42, 48, 60, 62, 63, 106 AND 109 is/are pending in the application.

Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) 60, 62 AND 63 is/are allowed.

Claim(s) 1, 2, 9, 20, 21, 29, 34, 42, 48, 106 AND 109 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

**Application Papers**

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

**Pri**ority under 35 U.S.C. § 119 (a)-(d)

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

All  Some\*  None of the:

Certified copies of the priority documents have been received.

Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

**Attachm**ent(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Reference(s) Cited, PTO-892

Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Revi w, PTO-948

Oth r \_\_\_\_\_

**Office Action Summary**

## DETAILED ACTION

### ***Election/Restrictions***

Applicant's election of claims 1-73 and 106-118 in their amendment mailed on Apr. 9, 2003 (paper no. 10) is acknowledged. Because the applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Art Unit: 1754

Claims 1, 2, 9, 20, 21, 29, 34, 42, 48, 106 and 109 are rejected under 35 U.S.C. 103(a) as obvious over U. S. Pat. 5,792,436.

U. S. Pat. 5,792,436 in its example 3 discloses at least an obvious variation of the same catalyst comprising a 1<sup>st</sup> underlayer containing oxidation catalyst, such as platinum supported on alumina, and a 2<sup>nd</sup> SO<sub>x</sub>-sorbing overlayer, such as an alkali metal and/or manganese oxide supported on a 2<sup>nd</sup> support (please also see col. 6 Ins. 39-41 and Ins. 47-51 as well as claims 6-9 in U. S. Pat. 5,792,436), and method for making the same, comprising:

(please refer to example 3, sections A and B in U. S. Pat. 5,792,436 for instructions on how the Pt/Al<sub>2</sub>O<sub>3</sub> "underlayer" catalyst was made)

combining a solution of platinum and a solution of alumina powder to provide a slurry of particles;

dipping a cordierite, honeycomb-type substrate into this slurry of particles so as to "washcoat" the Pt/Al<sub>2</sub>O<sub>3</sub> onto the honeycomb-type substrate, and

drying and calcining the resulting honeycomb-type substrate supporting the

Pt/Al<sub>2</sub>O<sub>3</sub>;

(please refer to example 3, section C in U. S. Pat. 5,792,436 for instructions on how the Pt/Al<sub>2</sub>O<sub>3</sub> catalyst was overcoated with the SO<sub>x</sub> sorbent material)

mixing the SO<sub>x</sub> sorbent and the alumina together and adding water to this mixture to produce a slurry of fine particles of SO<sub>x</sub> sorbent/Al<sub>2</sub>O<sub>3</sub>;

dipping the Pt/Al<sub>2</sub>O<sub>3</sub> layered substrate into this slurry of SO<sub>x</sub> sorbent/Al<sub>2</sub>O<sub>3</sub> so that the SO<sub>x</sub> sorbent/Al<sub>2</sub>O<sub>3</sub> is coated over the Pt/Al<sub>2</sub>O<sub>3</sub> layer, and

calcining the resulting catalytic composition to form a substrate containing a Pt/Al<sub>2</sub>O<sub>3</sub> underlayer and a SO<sub>x</sub> sorbent/Al<sub>2</sub>O<sub>3</sub> overlayer, in a manner rendering obvious the steps recited in at least applicants' claim 109.

The difference between at least the applicants' claim 109 and example 3 in U. S. Pat. 5,792,436 is that the applicants' claims set forth that the SO<sub>x</sub> sorbent is selected from MgAl<sub>2</sub>O<sub>4</sub>, MnO, MnO<sub>2</sub> and Li<sub>2</sub>O, whereas example 3 in U. S. Pat. 5,792,436 reports the use of SrO as the SO<sub>x</sub> sorbent.

Col. 11 Ins. 27-35 in U. S. Pat. 5,792,436 reports that the SO<sub>x</sub> sorbent may be selected from a variety of compounds to include an alkali metal or an oxide of manganese.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* example 3 set forth in U. S. Pat. 5,792,436 *by substituting* either the alkali metal or the oxide of manganese reported in col. 11 Ins. 27-35 in U. S. Pat. 5,792,436 *in lieu* of the SrO expressly mentioned in example 3 in U. S. Pat. 5,792,436, in the manner to arrive at the catalyst and method for making the same set forth in the applicants' pending claims, *because* the disclosure set forth in col. 11 Ins. 27-35 sets forth that the SrO of example 3 and the alkali metals and manganese oxides of col. 11 Ins. 27-35 are functionally equivalent SO<sub>x</sub> sorbents and the substitution of one disclosed functional equivalent in lieu of another disclosed functional equivalent is *prima facie* obvious.

Art Unit: 1754

Claims 60, 62 and 63 have not been rejected under either 35USC102 or 35USC103 because there is nothing in U. S. Pat. 5,792,436 teaching or suggesting that a top layer comprising supported MgAl<sub>2</sub>O<sub>4</sub> be provided over the bottom layer (i. e. the 1<sup>st</sup> layer) and middle layer (i. e. the 2<sup>nd</sup> layer).

***Response to Arguments***

The applicants' arguments with respect to the pending claims set forth in the amendment mailed on Apr. 9, 2003 (paper no. 10) have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1754

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

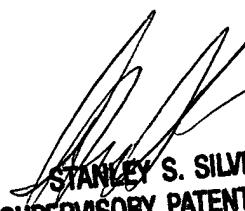
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv  
May 6, 2003

Timothy Vanoy  
Patent Examiner

Art Unit 1754

  
STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700